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Simplify and control large network rollouts

Control Tower Suite helps CSPs to roll out and upgrade to next-generation technologies

White paper

Communication service providers (CSPs) need to manage complexity from many sources when they deploy next-generation network technology. With the Network Build Control Management (Control Tower Suite) service, Nokia provides process automation, advanced analytics tools, and global delivery expertise to enable CSPs to remove complexity from the deployment process. The results are lower network rollout costs, shorter time to revenue, and first-time-right deployment.

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Introduction

The global fixed broadband subscriber base will continue to grow over the next five years. Current projections indicate that there will be more than 1.7 billion broadband subscriber lines by the end of 2028*. Communication service providers (CSPs) are preparing for this growth by using next-generation technologies such as Software-Defined-Network and XGS-PON to upgrade or build new networks. Moreover the industry is in the midst of upgrading fiber PON networks to XGS-PON and beyond.

For CSPs, rolling out new technologies to the most economic point to enable growth is both imperative and exciting. However, CSPs often overlook the complexity and hidden costs associated with network rollouts. This can keep them from reaping the benefits of their technology investments.

Figure 1. Rolling out ultra-broadband networks involves many stakeholders and activities

Process control   Migration
Real-time reporting   Rollout data management
IT system integration   Cost control
Complexity
Subcontractor management   Multi-actors coordination
Quality management
Material and inventory management   Document management

CSPs can encounter many sources of complexity when they roll out networks. For example, they may have issues with process control, data management, IT system integration, cost control, workflow management, subcontractor management, quality management, document management, or user migration. The complexity level grows if these issues are combined.

To make a network rollout more efficient, a CSP needs to know:

- What in-house capabilities it needs to manage complexity
- Where to get help to ensure a smooth rollout
- What tool to employ to get the rollout under control?

Nokia works closely with its CSP customers to address the challenges involved in building and rolling out next-generation networks. The Nokia Control Tower Suite combines advanced automation and analytics technologies with lessons learned from these deployment projects to help CSPs roll out next-generation with maximum efficiency.

The Control Tower Suite covers the complete process of building the network and extending it to subscribers' homes. This white paper focuses on how Control Tower Suite helps CSPs address the typical challenges they face in controlling the complexity and cost of network rollouts.

Common network rollout challenges

Building a new network is not an easy task. The following sections describe challenges that all CSPs face when they roll out new networks or upgrades.

Managing multiple actors

It is common for multiple actors to contribute to a large network rollout project. These actors can include the CSP's own teams and departments, vendors in different technology domains, and subcontractors sourced by the CSP or the vendors. Each actor has a specific task to perform and a tight timeline in which to perform it. However, the tasks are not necessarily coordinated across the project. They often come with their own operational tools, databases, and reporting methods. This lack of coordination can create silos within the end-to-end process.

The quality of each actor's work determines the quality of the network for many years to come. It also has a direct impact on operating costs and customer satisfaction. A CSP that prioritizes quality often spends more time and money on network rollouts. A CSP that prioritizes cost may end up with poor craftsmanship and gaps in engineering standards compliance.

CSPs want solutions that will allow them to:

- Manage the rollout project's actors and activities from end to end while minimizing the cost of integrating with their systems and processes

- Control cost and quality at the same time

- Help, support, and monitor subcontractors to ensure a better and faster network rollout

Managing the business case

Many CSPs wonder whether they should perform the network rollout themselves or engage partners to do the work. The question is a valid one, especially with FTTx networks, which require a large investment in new technologies, expertise, processes, systems, and tools. On the business side, take-up rates for new services can be difficult to predict. CSPs need to find ways to reduce the risk associated with a large up-front investment and still reap the benefits as the new services grow.

Many CSPs have concerns about what in-house capabilities they need for rollout management and whether they can reuse these capabilities. Some rollout management teams and systems can be reused during business-as-usual operations. Others may be required for relatively short-term purposes. Each CSP needs to find the right balance between developing in-house capabilities and seeking outside help.

CSPs that have set a relatively low entry budget will still have concerns about growth. They will want to ensure that they can explore new business and scale up rollout capacity in a progressive way.

Managing data

For organizational reasons or simply because of human habits, CSPs often use different databases and many spreadsheets in rollout projects. This lack of cohesion is unlikely to create problems with a small trial rollout. But it can become a major issue when the size of the rollout ramps up. Misalignment can occur between logical and physical databases, work orders and deployment sites, and design specifications and real installations. Reporting can take days or weeks because data needs to be collected, compared, and corrected manually. For projects that last for years, data can become lost or difficult to locate.

CSPs need solutions that allow them to:

- Establish a centralized database that everyone in the rollout project can depend on

- Reduce human effort by using automation to align, compare, and validate data from different sources

- Access required data anywhere and anytime

Managing internal processes and optimizing organizations

Evolving internal processes and organizations is one of the most challenging tasks a CSP faces in ramping up for a network rollout. These changes can sometimes take years to implement.

Given the highly competitive nature of the market, most CSPs can't afford to lose any time. They need solutions that can help them bridge the present mode of operation (PMO) and future mode of operation (FMO) in an agile way that allows the rollout to proceed at full speed while the organization and process changes unfold in the background.

Simplifying network rollouts with the Control Tower Suite

Control Tower suite provides a platform for process automation and advanced analytics and combines it with Nokia's service delivery expertise to provide CSPs with a smarter way to manage network rollouts.

This innovative project management service brings a new philosophy to network rollouts. In traditional rollout strategies, different technology owners address their task lists with their own databases and workflow controls. The Control Tower Suite uses a centralized database and automated, end-to-end workflow management to facilitate interactions between different teams.

Figure 2. Shortcomings of traditional rollout management vs centralized approach
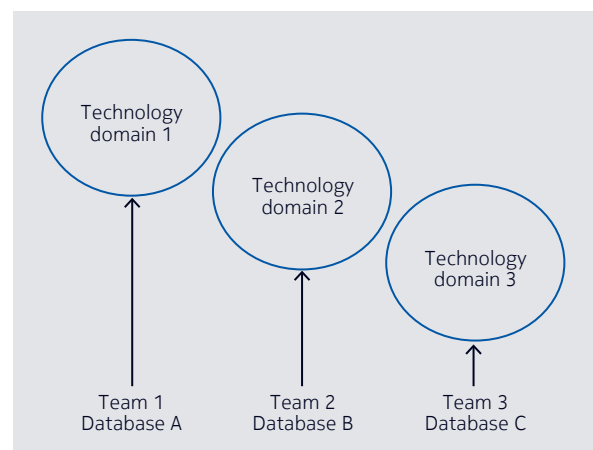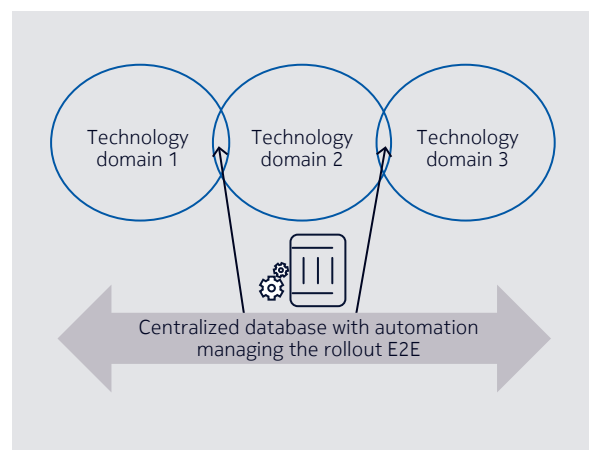
These capabilities are provided by the Control Tower Suite software platform. The platform also includes a smartphone application that enables the CSP's teams to collaborate and a machine-to-machine interface that can import and export data from various sources. The addition of support from Nokia's global team of experts enables CSPs to roll out networks faster while reducing cost and improving quality.

Supported activities

Control Tower Suite provides four types of network controls to help CSPs manage the complexity involved with network rollouts:

- **Process control** identifies gaps and issues in the existing process. It allows CSPs to design and create new processes, automate workflow, and track activities with real-time reporting capabilities.

- **Quality control** supports, monitors, and validates field technicians' augmented by artificial intelligence. It provides an online collaboration platform that supports efficient cross-team communication

- **Data control** provides a machine-to-machine interface that automates data import and export processes. The interface compares, correlates, and corrects data to make it accurate and reliable. It also allows teams to access cloud-based data on any screen anywhere.

- **Cost control** integrates rollout, inventory, and stock management systems to provide real-time visibility and forecasts relative to project costs. It lowers costs by using machine learning to reduce human error and repetitive work. It also provides a scalable service that allows CSPs to avoid overinvestment.

Service components

Control Tower Suite facilitates network rollouts through a combination of expert support and state-of-the-art software. Nokia's experts help CSPs optimize the rollout process, identify gaps, and implement solutions in an agile approach.

To ensure effective control of rollouts, Nokia can also bring experienced service team to make centralised control. These central teams monitor and support the work of actors in the end-to-end workflow. They validate subcontractors' work when it is completed and provide stakeholders with a real-time view of the rollout's progress. All of these capabilities allow the CSP to stay focused on driving business growth. As an alternative - management tasks can be performed by the CSP using Nokia state-of-the-art Control Tower Suite software, made available in the cloud as a SaaS model.

Target audience

The Control Tower Suite is for CSPs – telcos and cable multi-system operators (MSOs) – that plan to upgrade their networks to fiber or upgrade to next-generation PON technology such as XGS-PON particular value for CSPs that have a low budget for entering the fiber market or gaps in their in-house rollout capabilities. The service is also suitable for established organizations that are looking for a flexible solution to overcome challenges in a multi-actor environment and avoid the complexity involved in revamping their rollout processes.

Service benefits

CSPs can use the Nokia Control Tower Suite to optimize the cost, speed, and quality of network rollout projects.

Reduce rollout costs

The Control Tower Suite can have several positive effects on the cost structure of a network project:

- Project management costs: It is difficult to control management costs when rollout projects rely on manual processes and data from many different IT systems and databases. The Control Tower Suite reduces effort in the management layer with automation and a centralized database. The service's machine-to-machine interface and the online collaboration platform reduce costs further by significantly improving communications between systems and team members.

- Cost for non-quality: The Control Tower Suite center provides centralized support and timely technology expertise to all team members working on a rollout project. It also validates the work of onsite subcontractors, which reduces the rate of rework and improves acceptance rates.
- Subcontractor costs: Subcontractors can bring risk to a rollout project by reporting results only when they complete their work. Leveraging the easy access of the Control Tower Suite to every technician,, CSPs can plan, schedule, monitor, validate, and accept their work through one platform.

Generate revenue faster

A faster rollout means a faster time to market. By automating workflow management and providing centralized control with end-to-end visibility, the Control Tower Suite helps CSPs build networks faster. By accelerating rollouts, CSPs can reduce the time it takes to generate revenue from new services.

Ensure first-time-right activation

CSPs can use Control Tower Suite, a combination of automated tools and Nokia expertise, to control service delivery. This control ensures a high first-time-right rate for end-user service activation.

Conclusion

The Control Tower Suite allows CSPs to take advantage of Nokia's network rollout experience and advanced rollout management tools. Nokia delivers it to CSPs through an agile service deployment process and a lean, efficient service center that manages daily rollout activities. With help from the Control Tower Suite, CSPs can manage the complexity inherent in network rollouts to reduce cost, improve quality, and deploy new technologies faster.

Acronyms

CSP   communication service provider

FMO   future mode of operation

FTTx   fiber to the x

GPON   gigabit passive optical networks

MSO   multi-system operator

PMO   present mode of operation

SDN   software-defined networking XGS-PON 10 Gigabit Symmetrical PON